

A Comparison of the Incidence Rate in MTSS Tiers

Andrea Rackaway
Fort Hays State University
BS Student
Elementary Education

Abstract

The Multi-Tier System of Supports (MTSS) is an evolutionary educational method recently introduced to schools in Kansas. As part of an ongoing investigation into the deployment and effectiveness of the MTSS system, this pilot study established initial participation rates in the program.

This project sought to define the incidence rate among males and females in MTSS tiers in the study region. The study also sought initial teacher satisfaction with support for their development and training into the new MTSS system.

A survey consisting of 13 items was sent to 600 randomly selected elementary public school teachers in the Kansas First Congressional District. As expected, students placed in Benchmark constituted the highest number of participants. Students across MTSS tiers in Central and Western Kansas schools are distributed according to MTSS guidelines and are gender neutral. An implication of this study is that it is vital for effective instruction in reading and mathematics to approach instruction based on students' assessment results which are gained by frequent progress monitoring and assessment. A second implication is the need for leaders in school districts to provide teachers with MTSS professional development during their first through third year of teaching.

Introduction

When signed into law in 2004, the revised Individuals with Disabilities Act (IDEA) included options for schools across the country to adopt various Response to Intervention, or RtI, models. These models were designed as a means of assessing students' needs in order to maximize their achievement and reduce behavior problems (Gersten & Dimino, 2006; Vandehayden *et al.*, 2007). The Kansas model based on RtI is the Multi-Tier System of

Supports (MTSS). The main goal of MTSS is to provide an integrated systemic approach to meet the needs of all students and use resources in the most effective and efficient way to enable every child to be successful (Posney, 2007). What made MTSS different is the assessment and instructional practices are integrated into an objective data-based system with built-in instructional decision stages.

Figure 1: Multi-Tier System of Supports Logo

“MTSS is a coherent continuum of evidence based, system-wide practices to support a rapid response to academic and behavioral needs, with frequent data-based monitoring for instructional decision-making to empower each Kansas student to achieve high standards” (KSDE, 2012). When used with fidelity, students are constantly monitored and frequently assessed to determine the effectiveness of intervention. The model is dynamic with students moving amongst the tiers to continuously meet their changing needs while recognizing newly acquired skill sets. MTSS currently has three components; reading, mathematics, and behavior. Participating schools are free to adopt any or all of the components.

Tier one, Benchmark, is the basic, or preventative level of instruction and support (Strecker, 2007). At this level all students receive instruction and support. As the core, instruction is provided by the classroom teacher at grade level. Data for the assessments and progress monitoring are taken from Benchmark scores, standardized achievement tests, or median scores. Tier two, Strategic, is more intense than Tier one. The focus of this tier is on general areas of instruction in which the progress monitoring results indicated student did

not do well. This tier is considered the early intervention for students who may be at some risk but not necessarily falling behind in grade level curriculum. Tier two involves students working in small groups, usually 4 to 6 students, who need support in similar areas (Strecker, 2007). This instruction is given in addition to the Tier one instruction for a 30 minute time period a few days a week. The actual time allotment depends on the schools and their schedules. Delivery of Tier two instruction may be provided by the classroom teacher, curriculum specialist, school psychologist, or a trained paraprofessional (Strecker, 2007). In this tier, progress monitoring continues for a designated time period, generally 8 to 12 weeks, and is conducted every other week to check the progress of the students (KSDE, 2009). Progress monitoring data is then used to determine the next step in a student's instructional journey. If the student is progressing at a better rate than expected, he or she can then return to Tier one instruction. If the student is progressing, but not at the expected rate, he or she may continue in Tier two, or the student can be referred to Tier three for more intense instruction (Mercier-Smith, Fien, Basaraba, & Travers, 2009).

Tier three is the most intense and is specifically focused on an individual student's needs. In addition to Tiers one and two, a student can receive instruction in Tier three. The instructional sessions in this tier may be lengthier and delivered one-on-one or in smaller groups of two or three. Tier three should meet the needs of about 1 – 5% of the students (Mercier-Smith, *et al.*, 2009). Tier 3 students receive intensive interventions within small groups of 1-3 students. The instruction within this tier is typically provided by highly qualified educators, such as special education teachers. In Tier three, the progress is monitored weekly. If the student progresses at a rate that is expected, he or she can be moved to Tier two. If the progress is not as expected, he or she will continue in Tier three with instruction changed to meet his needs.

RtI, and MTSS by extension, is designed to intervene and reduce academic failure via targeted early intervention with students, periodic progress measurement, and progressively concentrated instructional interventions for children who continue to struggle with academic work. Faculty and staff as implementers need adequate preparation and training to execute MTSS with fidelity in their schools. As Taylor-Greene (1997) and colleagues indicate, faculty buy-in for new programs is essential to their successful deployment.

This study sought to answer two essential research questions. First, the study will quantify the incidence rate in the Multi-Tier System of Supports (MTSS) of males and females in

Central and Western Kansas and hypothesized that more males would be placed into the Tiers 2 and 3 in reading, while more females would be placed into Tiers 2 and 3 in math; however, most of the participants would be placed at Benchmark. Second, the faculty satisfaction with training and support will be gauged using a survey of teachers. Lee (2001) points out in regard to distance education developments, new programs are supported in greater numbers by inexperienced educators who have more recent training, therefore are better able to adapt to new methods of teaching.

Hypotheses

Based on the literature described above, three hypotheses emerge for this study:

H1: Male students will be represented in greater numbers in Reading Tiers 2 and 3

H2: Female students will be represented in greater numbers in Reading Tiers 2 and 3

H3: Faculty and staff with shorter tenures will display stronger measures of satisfaction with training and preparation for MTSS deployment.

Methods

A survey consisting of 13 items was sent to 600 randomly selected elementary public school teachers in the Kansas First Congressional District. This district encompasses 69 counties throughout all of Central and Western Kansas. The First Congressional District was chosen on the basis of completely covering the geographic spread of Central and Western Kansas. The cultures of the school districts, resource allocations, and student numbers would be roughly comparable throughout the entire district and subject to the same regulatory regime, making the area an excellent laboratory for the study.

Figure 2: Kansas Congressional District 1

The surveys were administered in two phases by the FHSU Docking Institute of Public Affairs. The first survey was administered from November 16 through December 4, 2011. The second survey was administered between February 1 and February 17, 2012. The participants were offered the choice to complete a paper or web-based survey. No monetary or school-based incentives were offered to participants. Of the 13 questions, five enlisted responses about placement in the tiers. Four questions asked participants about the adequacy of MTSS training and support provided by the administration and staff. Two questions asked participants to identify the component, i.e. reading and the universal screening tool(s) used in their schools. The final two questions gathered demographic data. The full text of the survey document is included in the Appendix.

Results of the Study

One hundred twenty-four (124) respondents participated for a response rate of 20.6 percent. Twenty percent and higher is considered an acceptable response rate for mail and online surveys offered without incentives (Hamilton, 2003). Figures 3 and 4 identify the numbers of students in each MTSS Tier—Intensive, Strategic, and Benchmark—for both reading and mathematics.

Figure 3: Reading MTSS Participation

t-test: 0.2959, $p > .05$

The modal category for reading was Benchmark with males outnumbering females; the modal category for mathematics was also Benchmark. A wider divide existed between numbers of students in Benchmark versus Strategic or Intensive in reading than in mathematics. More males than females participated at the Benchmark level, with females outnumbering males at the Strategic level. Almost no difference emerged between male and female students in the Intensive level, also making up the smallest category into which students were placed. T-tests, which measure differences between subsets of the same sample, were used to determine if the scores between groups were significant or not. The Reading and Mathematics MTSS groupings resulted in t-test scores of .2959 for Reading and .4866 for Mathematics. Neither test resulted in statistical significance between males and females. As a result, we can reject Hypotheses 1 and 2. There is no gender difference evident in placement of students in tiers in either reading or mathematics.

Figure 4: Mathematics MTSS Participation

t-test: 0.4866 $p > .05$

Table 1 reports the results in response to the survey's questions about receiving adequate training to implement MTSS in the school. Results indicate that most teachers were

satisfied with the training received for their entire school. Across the board, more than sixty percent of all teachers were satisfied with their school's training.

Table 1: Training Satisfaction by Experience

		I was provided with the training needed to implement MTSS in my school					Total
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
How long you have been a teacher	less than 1 year	2	1	1	0	0	
	1-3 years	2	3	3	1	2	
	3-5 years	0	7	1	0	1	
	5-8 years	6	14	4	2	2	
	8+ years	15	31	10	9	5	
Total		25	56	19	12	10	

12.409

Chi-Square

As seen in Tables 2 and 3, similar to the school-wide training question, most faculty felt well-prepared to implement MTSS in their own classrooms. Again, more than sixty percent of respondents indicated agreement or strong agreement with the statement they had received enough training to adequately implement the MTSS program in their own classrooms. For staff support, numbers declined slightly, where between fifty and sixty percent of respondents agreed they had adequate staff support for their

implementation. However, except for 3-5 years experienced teachers, more than half of all respondents in every category agreed they had enough staff support.

Table 2: Classroom Support Satisfaction by Experience

		School support is provided for me to implement MTSS in my classroom					Total
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
How long you have been a teacher	less than 1 year	2	1	0	1	0	4
	1-3 years	2	5	3	1	0	11
	3-5 years	3	2	3	0	0	8
	5-8 years	7	10	4	7	0	28
	8+ years	19	31	9	7	4	70
Total		33	49	19	16	4	121
Chi-Square		15.04					

Table 3: Staff Support Satisfaction by Experience

		I believe that staff at my school are providing adequate support for me to implement MTSS in my classroom					
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
How long you have been a teacher	less than 1 year	1	2	0	1	0	4
	1-3 years	3	2	3	3	0	11
	3-5 years	2	2	3	1	1	9
	5-8 years	5	11	7	5	0	28
	8+ years	15	29	12	7	7	70
Total		26	46	25	17	8	122
12.205							
Chi-Square							

More experienced educators across the board are more satisfied with their training, support and classroom deployment of MTSS than their less-experienced counterparts. The implication of the findings is certainly that less experienced teachers have more learning to do regarding new techniques or less time with other adaptations to their schools to understand, access, or use the training materials available. Chi-squared tests for each of the three tables, with 16 degrees of freedom for each, emerged with values between 12 and 15, failing to satisfy statistical significance at the .05 level. Therefore, we can reject Hypothesis 3.

Discussion and Future Implications

As expected, students placed in Benchmark constituted the highest number of participants. Students in reading deviated slightly with the Strategic and Benchmark Tiers closer in number to each other. Results in mathematics from the sample in this study revealed students' placements more closely modeled the "All, Some, Few" distribution of students across categories of MTSS.

In regard to allocation of students across MTSS categories, the public schools in Western and Central Kansas which completed the survey, followed the MTSS recommended percentages of tier placement and were gender neutral. No significant division emerged between number of boys and girls at Benchmark level in reading and mathematics. Boys were expected to participate in higher Benchmark numbers than girls in mathematics, while girls were expected to participate in higher numbers at Benchmark for reading. Gender differences do appear to emerge in MTSS deployments across western Kansas. Teachers implementing MTSS must therefore take care to address their different tiers with a degree of gender-attention and specificity.

The study found that teachers with the fewest years of teaching experience were less satisfied with the MTSS training provided to them than more experienced colleagues. In addition, teachers with eight or more years of teaching experience were least satisfied with the adequacy of administrative and support staff. As a result, school districts seeking to implement MTSS with fidelity should invest in appropriate training materials, staff, and budget time to properly prepare teachers.

A premise of the MTSS model is to monitor and frequently assess students' progress. An implication of this study is to approach instruction based on students' assessment results, which will determine the level of interventions needed in both reading and mathematics. Frequent progress monitoring and assessment by teachers and school staff is vital to effective instruction in both curricular areas.

A second implication of this study is the need for districts to provide teachers with MTSS professional development during their first through third year of teaching. The strong trend of satisfaction among teachers in the study suggests that opportunities for training be made available to all members of school faculty and better promulgation of the availability of those resources be made.

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Survey Questionnaire

A Comparison of the Incidence Rate of Males Vs. Females in MTSS Tier Placement for Reading and Mathematics in Central and Western Kansas.

1. Please indicate the number of years your school has been participating in each of the following components of MTSS. If your school has not progressed beyond training at this point please mark training below.

____ Mathematics ____ Reading and Language Arts ____ Training*

*If you answered training to question 1, you do not need to complete the remainder of this survey. Please return it as instructed. If your school has implemented MTSS, please continue to question 2.

2. At each of the following levels, how many male students are involved in the mathematics component of MTSS in your classroom:

____ Intensive ____ Strategic ____ Benchmark

3. At each of the following levels, how many female students are involved in the mathematics component of MTSS in your classroom:

____ Intensive ____ Strategic ____ Benchmark

4. At each of the following levels, how many male students are involved in the reading component of MTSS in your classroom:

____ Intensive ____ Strategic ____ Benchmark

5. At each of the following levels, how many female students are involved in the reading component of MTSS in your classroom:

____ Intensive ____ Strategic ____ Benchmark

6. Please check (II) one response to this statement: "I was provided with the training needed to implement MTSS in my school."

____ Strongly Agree ____ Agree ____ Neutral ____ Disagree ____ Strongly Disagree

7. Please check (II) one response to this statement: "School support is provided for me to implement MTSS in my classroom."

____ Strongly Agree ____ Agree ____ Neutral ____ Disagree ____ Strongly Disagree

8. Please check (II) one response to this statement: "I believe that staff (staff is defined as any non-classroom teacher including but not limited to: teacher aides, paraprofessionals, librarians, cooks) at my school are providing adequate support for me to implement MTSS in my classroom."

____ Strongly Agree ____ Agree ____ Neutral ____ Disagree ____ Strongly Disagree

9. Please indicate your gender.

____ Male ____ Female

10. **Please indicate how long you have been a teacher below (include years of service at all schools, not just your current school if applicable).**

____ less than 1 year ____ 1-3 years ____ 3-5 years ____ 5-8 years ____ 8+ years

11. **Please indicate what grade level you are currently teaching.**

____ K-2 ____ 3-4 ____ 5-6

12. **Please indicate the MTSS screening tool that is used by your school.**

____ AIMSweb (Academic Improvement Monitoring System) ____ DIBELS (Dynamic Indicators of Basic Early Literacy Skills) ____ iSTEEP (Systems to Enhance Educational Performance) ____ MAP (Measure of Academic Progress) ____ ODR (Office Discipline Referrals) ____ SDQ (Strengths and Difficulties Questionnaire) ____ SRSS (Student Risk Screening Scale) ____ Other: Please indicate the screening tool used by your school

13. **Does your school/district have an MTSS Facilitator?**

____ Yes ____ No

Thank you for completing our survey.